Remarks/Arguments:

In response to the Final Office Action dated April 17, 2008, the Applicants provide the following remarks in support of this preliminary amendment. Claims 1 through 15 are pending in this application. Independent claims 1 and 6 have been substantively amended to address the new patents cited and issues raised in the Office Action. These amended claims now formally include revisions as proposed by the Examiner as part of a telephonic interview with counsel.

The Office Action rejected claims 1 through 5 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of U.S. Patent No. 6,285,858 ("Yoshida") and further in view of U.S. Patent Application No. US 2002/0128769 ("Der Ghazarian et al."), and still further in view of U.S. Patent Application No. US 2003/0130013 ("Kaegebein"). The Office Action further rejected claims 6, 7, and 10 through 15 under 35 U.S.C. § 103(a) as being rendered obvious in view of Yoshida and in further view of Kaegebein.

Finally, the Office Action rejected claim 8 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of Yoshida in combination with Kaegebein, and in further view of U.S. Patent No. 3,962,142 ("Freeman et al."), and rejected claim 9 under 35 U.S.C. § 103(a) as being rendered obvious and being unpatentable in view of Yoshida in combination with Kaegebein, and in further view of U.S. Patent No. 5,460,649 ("Strassman").

Applicants respectfully contend that, as amended and clarified, Yoshida, Der Ghazarian et al., the newly cited application of Kaegebein, Freeman et al., and Strassman, do not render obvious the pending claims alone or in combination with each other, or any other cited references.

A. Claim 1 and Claim 6, as Amended, Recite Patentable Subject Matter

As amended and presented, claim 6 specifically recites:

1. A radio communications system comprising:

(a) an intrinsic pavement transmitter and antenna material for conducting radio frequency signals *wherein the intrinsic material does not include any conductive wires*;

(b) a first transmitter/receiver, at a first point along the intrinsic pavement transmitter and antenna material, and in communication with an end-user; and

(c) a second transmitter/receiver, at a second point along the intrinsic pavement transmitter and antenna material, and in communication with an end-user; wherein the intrinsic pavement transmitter and antenna material conducts radio frequency signals between the first and second transmitter/receiver entirely within the pavement material, and further wherein *there are no conductive wires within the intrinsic pavement material that connect* the first transmitter/receiver and the second transmitter/receiver. (Emphasis added).

6. An intrinsic pavement transmitter and antenna material, *wherein the intrinsic material does not include any conductive wires, and said pavement material* comprising a roadway, including:

(a) a suitable wearing course material; and

(b) an effective amount of radio frequency conductive material, sufficient to conduct radio frequency signals, between at least two locations within the pavement, such that the radio frequency signals are conducted entirely within the pavement transmitter and antenna material, and wherein *there are no conductive wires within the pavement material that connect* the at least two locations within the pavement material. (Emphasis added).

As explicitly provided within these two independent claims, the present invention discloses an intrinsic pavement radio frequency ("RF") transmitter and antenna, and a radio communications system having an intrinsic pavement transmitter and antenna such that the RF signals are conducted entirely within the pavement transmitter and antenna, or are conducted entirely through the conductive paving materials. There are no conductive wires or other conductive materials coupling the first and second transmitter/receiver. By design, the roadway paving material

is the conductor and transmitter of the radio frequency signals between the first transmitter/receiver and the second transmitter/receiver. More particularly, as now specifically identified in the independent claims, there are no other conductive wires or couplings between the transmitter/receivers other than the intrinsic pavement material.

As previously noted, the support for this limitation is found at page 3, paragraph [0041] of the pending published application (U.S. Patent Application Publication No. US 2003/0036369) noting that "[t]he radio frequency 56 is conducted *along the intrinsic pavement transmitter and antenna* 10 until it reaches another transmitter/receiver." (Emphasis added). There is no description or disclosure in the application of the use of any other conducting medium, including any wires of any type that lie between the two transmitters/receivers.

The Office Action notes that Yoshida discloses that "the only conductive coupling between the first transmitter/receiver (Fig. 2,4: 30) and the second transmitter/receiver (Figs. 2, 4: 16, 42, 44) is the intrinsic pavement transmitter and antenna material (Fig. 2, 26; Fig. 4, 52) (col. 3, lines 19-27 and lines 53-61)." As previously explained, Applicants note that as described in Yoshida, "the antennas 26 are *coupled in series*." Col. 2, lines 42 through 44 (emphasis added). The "coupling" as described and shown in Yoshida (see Fig. 2) appears to be a hardwire connection between the antennas 26 and the devices 28 for splitting and combining the signals from the plurality of antennas 26. Col. 2, line 59 through col. 3, line 2. Indeed, as shown in Fig. 2 of Yoshida, there is a direct connecting wire between each of the antennas 26 and corresponding devices 28. Accordingly as described by Yoshida, the RF signal is not transmitted through the pavement using the pavement as the conducting medium, but the RF signal is transmitted between the antennas 26 using the wired coupling between each of the corresponding devices 28.

As further disclosed and described in a second embodiment in Yoshida, and showing more detail about the "coupling" of the antennas 26, a single "leaky conductive line 52 [is used] in place of the combined arrangement of the antennas 26 and the devices 28 (Fig. 2)." Col. 3, lines 53 through 56. Yoshida explains that the "leaky conductive line 52 has one end coupled to a terminator 60 and the other end coupled to the roadside control unit 30." Col. 3, lines 56 through 58. As such,

the "coupling" of the antennas 26, or the use of a conductive line 52 to "couple" the terminator 60 and control unit 30 is, in either embodiment, by a hard wire type of element.

Applicants contend that there is no disclosure or suggestion in Yoshida showing that the RF signal between the antennas 26, the corresponding devices 28, or between the terminator 60 and control unit 30 is conducted solely through the roadway material without any other conducting medium, including any conducting wires. Because Yoshida does not disclose or suggest the use of the roadway material as the sole conducting element or conducting medium, applicants contend that Yoshida does not render obvious the claimed invention alone or in combination with any other cited reference. Applicants respectfully request withdrawal of the noted rejection based upon Yoshida.

Similar to Yoshida, neither Kaegebein nor Der Ghazarian discloses a system in which communication occurs between a receiver and transmitter such that the RF signals are conducted entirely within the roadway pavement and without any other conducting medium other than the roadway pavement. Kaegebein discloses a wireless communication system for closed environments using a plurality of antennas parallel lines coupled to a coaxial cable. Kaegebein does not disclose, or suggest any application to transmitting radio frequency signals through a roadway using the roadway material as the conducting material. Accordingly, applicants respectfully contend that Yoshida in view of Kaegebein and further in view of Der Ghazarian do not render obvious the pending claims as amended, and accordingly requests withdrawal of the noted rejection based upon Yoshida in view of Kaegebein, and further in view of Der Ghazarian.

The advantages of the subject matter of claims 1 and 6 are not attained or suggested by the Yoshida patent alone, or in combination with any of the other cited patents. This is because claims 1 and 6 contain features as described above that are not taught or suggested by the applied references. As explained by Judge Rich in *In re Civitello*, 144 USPQ 10, 12 (CCPA 1964), when a claimed feature is not disclosed by the reference, the reference cannot render the claim obvious:

> Since Haslacher fails to disclose the feature of the claim relied on, we do not agree with the patent office that it would suggest modifying the Craig bag to contain the feature. The Patent Office finds the suggestion, only after making a modification which is not suggested, as we see it, by anything other than appellant's own disclosure. This is hindsight reconstruction. It does not establish obviousness. (Emphasis in original.)

Thus, applicants respectfully do not agree with the Office Action that the Yoshida patent in combination with Kaegebein and Der Ghazarian supports a prima facie case of obviousness.

B. Dependent Claims

Because claims 2 through 5, and 7 through 15 depend directly from patentable claim 1 and patentable claim 6, these dependent claims are also patentable. *See, e.g., In re McCarn*, 101 USPQ 411, 413 (CCPA 1954) ("sound law" requires allowance of dependent claims when their antecedent claims are allowed). Moreover, claims 2 through 5, and claims 7 through 15 are each non-obvious in view of the applied references.

C. Conclusion

By this Amendment, pending claims 1 through 15 have been amended directly (or indirectly through an amendment to the two independent claims) to place the application in better condition for examination and allowance.

Applicants respectfully contend that the rejections under 35 U.S.C. § 102 and 35 U.S.C. § 103 should be withdrawn. Favorable action is earnestly solicited.

Finally, the Examiner is invited to call applicants' undersigned representative if any further action will expedite the prosecution of the application or if the Examiner has any suggestions or questions concerning the application or the present Response. In fact, if the claims of the

application are not believed to be in full condition for allowance, for any reason, applicants respectfully request the constructive assistance and suggestions of the Examiner in drafting one or more acceptable claims pursuant to MPEP § 707.07(j) or in making constructive suggestions pursuant to MPEP § 706.03 so that the application can be placed in allowable condition as soon as possible and without the need for further proceedings.

Respectfully submitted,

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The Commissioner for Patents is hereby authorized to charge payment of any additional fee which may be required or to credit any overpayment to Deposit Account No. **502951**.

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Michael A. Marshall